SOUTH DAKOTA STATEWIDE FISHERIES SURVEY

2102-F-21-R-48

Name: East Morristown Lake **County:** Corson
Legal Description: T23N-R20W-Sec. 27-28 **GPS:** 45°55'35.11"N 101°38'49.42"W
Location from nearest town: 4 miles east, ½ mile south, and ¼ mile west of Morristown

Date of present survey: July 6-8, 2015 (netting)
Date of last survey: June 20-27, 2012 (netting)
Most recent lake management plan: F-21-R-45 (January 1, 2013 to December 31, 2017)
Management classification: Warmwater Marginal

Primary Game Species	Secondary and Other Species
Northern Pike	Black Bullhead
Black Crappie	Largemouth Bass
Yellow Perch	

PHYSICAL DATA

Surface Area: 96 acres **Watershed:** 6,720 acres
Maximum Depth: 26 feet **Mean Depth:** 12 feet
Lake elevation at time of survey (field observations): Full
Contour map: No **Date:** NA

Ownership of lake and adjacent lakeshore properties:

East Morristown Dam is a ninety-six acre impoundment on an unnamed tributary of Hay Creek four miles east and ½ mile south of the town of Morristown in northwest Corson County. East Morristown was originally known as Morristown Railroad Dam when the Chicago, Milwaukee and St. Paul Railroad constructed the earthen dam that created the reservoir in the early 1900s. The dam grade and part of the north shore (NE ¼ of Sec. 28) of East Morristown Lake is owned by the State of South Dakota. The State of South Dakota also owns the NW ¼ of the SW ¼ of Sec. 27. The Bureau of Indian Affairs owns the land on the east end (the rest of the south half of Sec 27) and the northwest part of the lake (NW ¼ of Sec 28). The rest of the lake is privately owned. Since the majority of the construction was on railroad property, no public use easements or water rights to the State of South Dakota were recorded.

Watershed condition with percentages of land use types:

The watershed for East Morristown is 6,720 acres or approximately ten and one half square miles that is made up of privately owned agricultural land and tribal allotted land. Land in the watershed is approximately 66% native grassland used as pasture and for hay crops, and 34% cultivated cropland. The immediate shoreline is native grasses of which about 60% are utilized as pasture during summer months.

Fishing access:

There are two boat ramps to access the water with a boat. The ramp on the east end of the lake is the better of the two, but both are good ramps. There is also shoreline fishing opportunities around most of the lake.

Condition of all structures (i.e. spillway, boat ramps, level regulators, etc.):

Dam and spillway are in good condition. Access to the shoreline is a dirt trail, which is impassable when wet.

Field observations of aquatic vegetation condition:

Emergent vegetation is present in both arms of East Morristown Dam. Submergent vegetation is scattered throughout the lake and is heaviest in the shallow areas.

CHEMICAL DATA

Field observations of water quality and pollution problems:

No pollution problems were evident during the present survey. Water clarity was good with a secchi disc reading of 3.0 feet. Other water quality characteristics were measured in the field on July 7, 2015, using a HACH water quality kit and a Hanna multiparameter meter. Results are found in Table 1.

Presence of a thermocline and depth from surface: No
Station for water chemistry located on attached map: Yes

Table 1. Water chemistry results from East Morristown Lake, Corson County, July 7, 2015.

Station	Depth (ft)	Temp (F)	DO (ppm)	CO2 (ppm)	ALK (mg/L)	HRD (mg/L)	pH	Cond. (µS/cm)	TDS (ppm)	Sal.	ORP	Secchi (ft)
A	Surface	72.4	5.80	28.4	503	804	8.70	3708	1854	1.96	-110.0	3.0
A	22.5		1.24	15.0	509	774	8.23	3665	1832	1.94	-227.8	

BIOLOGICAL DATA

Methods:

East Morristown Lake was sampled on July 6-8, 2015, with ten overnight trap net sets. The trap nets have 3ft x 5ft frames, 60ft leads, and ¾ in. knotted mesh. Two experimental gill nets were also set. The gill nets are 150ft x 6ft with 25ft panels of ½, ¾, 1, 1-1/4, 1-1/2, and 2 inch monofilament mesh. No electrofishing was done this survey period. Fish indices and statistics were completed using Winfin.

Results and Discussion:

Trap Net Catch

Table 2. Total catch of ten, overnight ¾-inch frame nets at East Morristown Lake, Corson County, July 6-8, 2015.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Yellow Perch	29	46.0	2.9	± 1.0	2.4	32	0	105
Northern Pike	26	41.3	2.6	± 1.2	1.7	65	0	100
Black Crappie	7	11.1	0.7	± 0.7	27.3	0	0	132
Smallmouth Bass	1	1.6	0.1	± 0.1	0.0**	--	--	107

*Ten year mean (1981, 1989, 1994, 1997, 1999, 2002, 2005, 2009, 2011, 2012)
** First time sampled

Gill Net Catch

Table 3. Total catch of two, 150ft experimental gill nets at East Morristown Lake, Corson County, July 6-8, 2015.

Species	#	%	CPUE	80% C.I.	Mean CPUE*	PSD	RSD-P	Mean Wr
Yellow Perch	15	75.0	7.5	± 23.1	10.4	23	0	102
Northern Pike	5	25.0	2.5	± 7.7	4.7	80	0	85

*Eight year mean (1981, 1994, 1997, 1999, 2002, 2005, 2011, 2012)

Fish Population

The fish populations in East Morristown Lake appear to be fairly stable. It was hoped to see increases in all species but that was not the case. Yellow perch were once again the dominant species present in East Morristown Lake. The gill net CPUE of 7.5 is below the 27.5 from the 2012 survey (Table 6) as well as the 10.4 eight year mean (Table 3). The trap net CPUE of 2.9 is above the 0.0 from the 2012 survey (Table 6) as well as the 2.4 ten year mean (Table 2). Figures 1 and 2 illustrate the length frequency histograms for the fish sampled the last two surveys and not much has changed. Growth is good with means right on with statewide, regional and SLI means (Table 4). Condition is good with a mean Wr of 104.

Northern pike were again the next highest in density. The gill net CPUE of 2.5 is below the 9.0 from the 2012 survey (Table 6) as well as the 4.7 eight year mean (Table 3). The trap net CPUE of 2.6 is above the 0.0 from the 2012 survey (Table 6) as well as the 1.7 ten year mean (Table 2). Figures 3 and 4 illustrate the length frequency histograms for the fish sampled from the last two surveys with not much change other than the fish getting slightly longer. Condition is good with a mean Wr of 93.

Black crappies were again sampled this survey. With only 7 fish sampled, not much can be said about their population at this time. More stockings will be attempted to try and help their numbers increase. One smallmouth bass was the only other fish sampled this survey. Black bullhead, bluegill and walleye were the species not sampled that have been in surveys past (Table 6).

Table 4. Average back-calculated lengths (mm) for each age class of yellow perch sampled from East Morristown Lake, Corson County, 2015.

			Back-calculated Age		
Year Class	Age	N	1	2	3
2014	1	22	93		
2013	2	18	102	170	
2012	3	1	114	147	188
All Classes		**41**	**103**	**159**	**188**
Statewide Mean			86	145	190
Region II Mean			91	152	196
SLI* Mean			87	142	185

*Small Lakes and Impoundments

Figure 1. Length frequency histogram for yellow perch sampled from East Morristown Lake, Corson County, 2015.

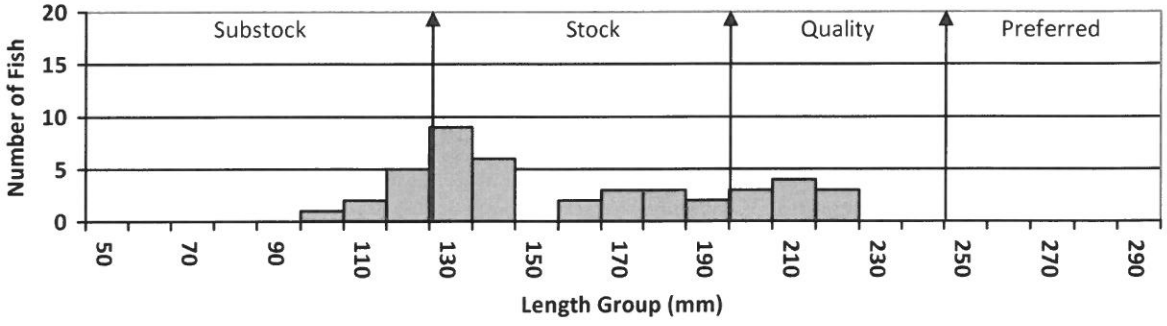

Figure 2. Length frequency histogram for yellow perch sampled from East Morristown Lake, Corson County, 2012.

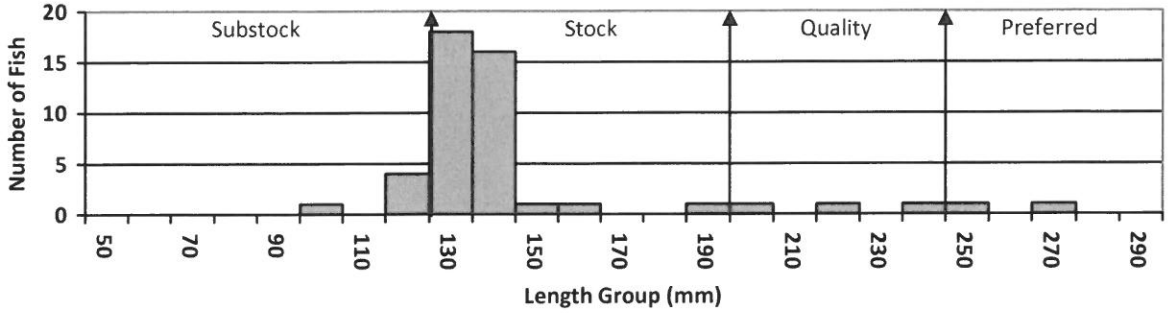

Figure 3. Length frequency histogram for northern pike sampled from East Morristown Lake, Corson County, 2015.

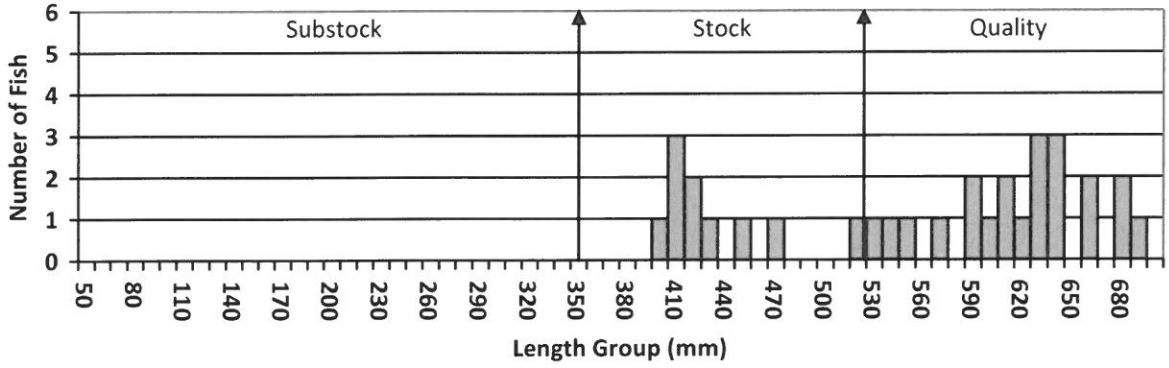

Figure 4. Length frequency histogram for northern pike sampled from East Morristown Lake, Corson County, 2012.

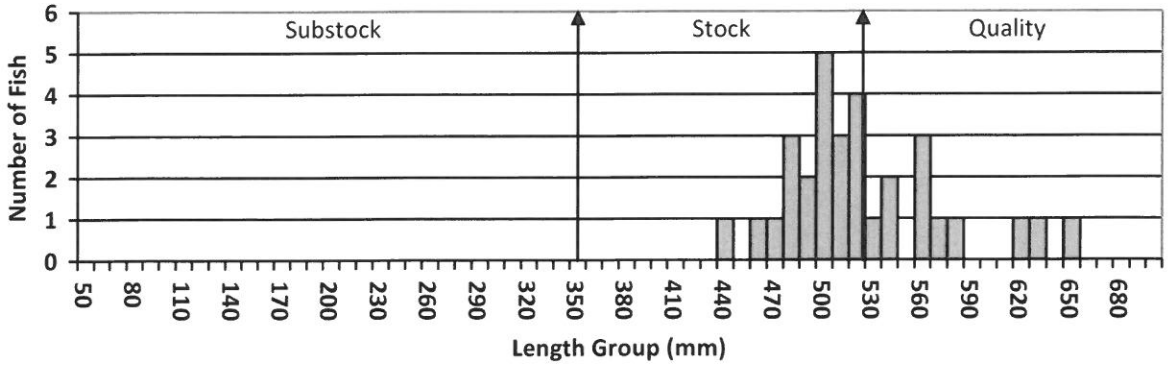

Table 5. Stocking records from 1999 to the present for East Morristown Lake, Corson County.

Year	Number	Species	Size
1999	135	Bluegill	Adult
2000	824	Bluegill	Adult
2001	80	Black Crappie	Adult
2002	124	Black Crappie	Adult
2003	640	Black Crappie	Adult
2004	300	Black Crappie	Juvenile
2009	23,400	Largemouth Bass	Small Fingerling
2010	185	Black Crappie	Adult
2010	9,650	Largemouth Bass	Fingerling
2011	135	White Crappie	Adult
2012	16	Smallmouth Bass	Adult
2012	120	Smallmouth Bass	Juvenile
2012	9,730	Walleye	Small Fingerling
2012	300	Yellow Perch	Adult

RECOMMENDATIONS

1. Continue to monitor and stock fish according to the management plan as needed to rebuild the populations after the recent drought and loss of fish.

2. Resurvey in 2018 to monitor the fish populations in East Morristown Lake.

Table 6. Gill net (GN) and trap net (TN) CPUE for all fish species sampled from the first survey to the present in East Morristown Lake, Corson County.

Species	1981	1989	1994	1997	1999	2002	2005	2009	2011	2012	2015
BLB (GN)	--	--	--	--	--	--	--	--	--	--	--
BLB (TN)	--	0.63	--	--	--	--	--	--	--	--	--
BLC (GN)	73.0	--	--	--	--	--	--	--	--	--	--
BLC (TN)	134.0	132.5	2.75	0.63	0.5	1.0	1.2	--	0.2	0.2	0.7
YEP (GN)	36.0	--	--	--	--	19.5	--	--	--	27.5	7.5
YEP (TN)	22.0	0.88	--	0.5	--	--	0.1	0.1	0.2	--	2.9
NOP (GN)	4.0	--	6.0	8.0	4.0	1.5	5.0	--	--	9.0	2.5
NOP (TN)	2.0	0.63	1.63	1.25	3.5	1.5	2.3	0.5	1.8	--	2.6
BLG (GN)	--	--	--	--	--	--	--	--	--	--	--
BLG (TN)	--	--	--	--	--	1.5	--	--	--	--	--
WAE (GN)	--	--	--	--	--	--	--	--	--	--	--
WAE (TN)	--	--	--	--	--	--	0.1	--	--	--	--
SMB (GN)	--	--	--	--	--	--	--	--	--	--	--
SMB (TN)	--	--	--	--	--	--	--	--	--	--	0.1

BLB – Black Bullhead, BLC – Black Crappie, YEP – Yellow Perch, NOP – Northern Pike, BLG – Bluegill, WAE - Walleye